

ABSTRACT OF THE DISCLOSURE

The invention provides methodologies and apparatus for producing acellular soft-tissue implants, both in small quantities and in commercializable quantities. Such soft-tissue implants include vascular graft substitutes. An acellular graft is produced by subjecting the tissue sample to an induced pressure mediated flow of an extracting solution, followed by inducing a pressure mediated flow of a treating solution, then washing the treated tissue to produce the acellular graft. The acellular grafts produced are uniform and non-immunogenic. The inventive method allows for the production of multiple decellularized soft tissue implants, where processing time is significantly less than prior art processes and the number of implants produced per day is increased over prior art processes. In clinical use, the decellularized grafts produced exhibit significantly improved in long-term durability and function.